Serial No.	H-V027-E-12

Ball Valve Type 21･21α

Nominal size 15 - 100mm (1/2 - 4")

User's Manual

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ASAHI *AV* VALVES

This user's guide contains information important to the proper installation, maintenance and safe use of an ASAHI AV Product. Please store this manual in an easily accessible location.

<Warning & Caution Signs>

Warning	This symbol reminds the user to take caution due to the potential for serious injury or death.
Caution	This symbol reminds the user to take caution due to the potential for damage to the valve if used in such a manner.

<Prohibited & Mandatory Action Signs>

	Prohibited: When operating the valve, this symbol indicates an action that should not be taken.
	Mandatory action: When operating the valve, this symbol indicates mandatory actions that must be adhered to.

(1) Be sure to read the following warranty clauses of our product

- Always observe the specifications of and the precautions and instructions on using our product.
- We always strive to improve product quality and reliability, but cannot guarantee perfection. Therefore, should you intend to use this product with any equipment or machinery that may pose the risk of serious or even fatal injury, or property damage, ensure an appropriate safety design or take other measures with sufficient consideration given to possible problems. We shall assume no responsibility for any inconvenience stemming from any action on your part without our written consent in the form of specifications or other documented approval.
- The related technical documents, operation manuals, and other documentation prescribe precautions on selecting, constructing, installing, operating, maintaining, and servicing our products. For details, consult with our nearest distributor or agent.
- Our product warranty extends for one and a half years after the product is shipped from our factory or one year after the product is installed, whichever comes first. Any product abnormality that occurs during the warranty period or which is reported to us will be investigated immediately to identify its cause. Should our product be deemed defective, we shall assume the responsibility to repair or replace it free of charge.
- Any repair or replacement needed after the warranty period ends shall be charged to the customer.
- The warranty does not cover the following cases:
  (1) Using our product under any condition not covered by our defined scope of warranty.
  (2) Failure to observe our defined precautions or instructions regarding the construction, installation, handling, maintenance, or servicing of our product.
  (3) Any inconvenience caused by any product other than ours.
  (4) Remodeling or otherwise modifying our product by anyone other than us.
  (5) Using any part of our product for anything other than the intended use of the product.
  (6) Any abnormality that occurs due to a natural disaster, accident, or other incident not stemming from something inside our product.

(2) General operating instructions

Warning

- Using a positive-pressure gas with our plastic piping may pose a dangerous condition due to the repellent force particular to compressible fluids even when the gas is under similar pressures used for liquids. Therefore, be sure to take the necessary safety precautions such as covering the piping with protective material. For inquiries, please contact us. For conducting a leak test on newly installed piping, be sure to check for leaks under water pressure. If absolutely necessary to use a gas in testing, please consult your nearest service station beforehand.
- Certain liquid such as H_2O_2, NaClO, etc may be prone to vaporization (Off-Gassing) which may cause irregular pressure increases, which may destroy the valve.

Caution

- Do not step on or apply excessive weight on valve. (It can be damaged.)
- Do not use the valve to fluid containing slurry. (The valve will not operate properly.)
- Do not use the valve in conditions where the fluid may have crystallized. (The valve will not operate properly.)

- Keep the valve away from excessive heat or fire. (It can be damaged, or destroyed.)
- Always operate the valve within the pressure vs. temperature range. (The valve can be damaged or deformed by operating beyond the allowable range.)
- Allow sufficient space for maintenance and inspection.
- Select a valve material that is compatible with the media. For chemical resistance information, refer to "CHEMICAL RESISTANCE ON ASAHI AV VALVE". (Some chemicals may damage incompatible valve materials.)
- Keep the valve out of direct sunlight, water and dust. Use cover to shield the valve. (The valve will not operate properly.)
- Perform periodic maintenance. (Leakage may develop due to temperature changes or periods of prolonged storage, rest, or operation.)

(3) General instructions for transportation, unpacking and storage

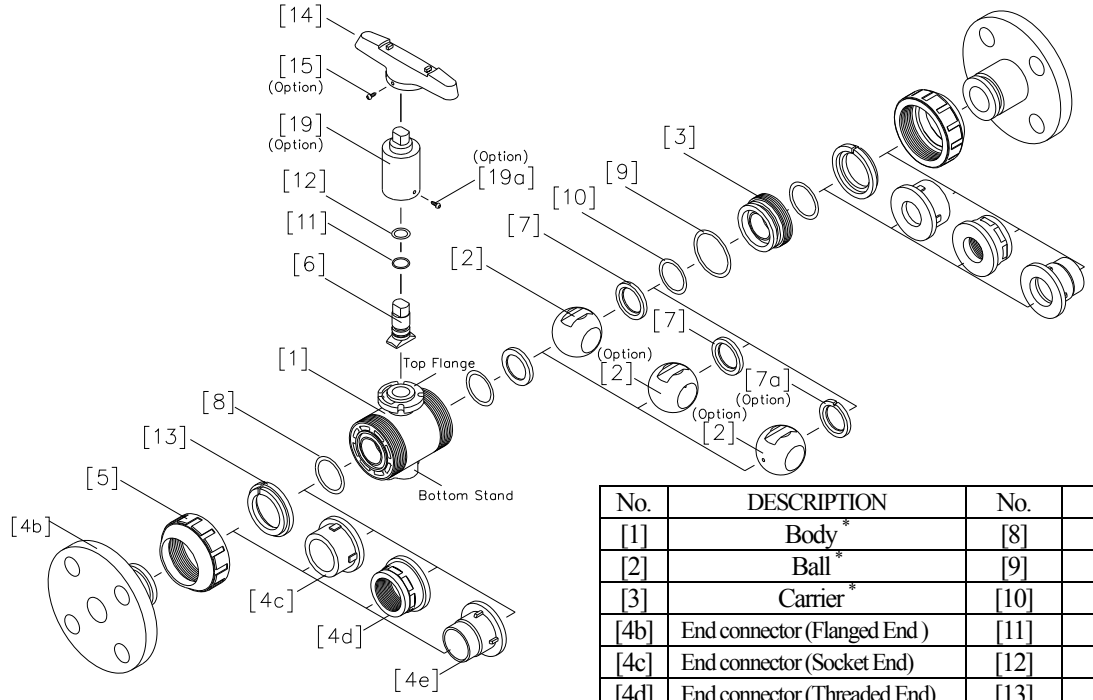
- When suspending and supporting a valve, take care and do not stand under a suspended valve.

- This valve is not designed to handle impacts of any kind. Avoid throwing or dropping the valve.
- Avoid scratching the valve with any sharp object.
- Do not over-stack cardboard shipping boxes. Excessively stacked packages may collapse.
- Avoid contact with any coal tar creosote, insecticides, vermicides or paint.
  (These chemicals may cause damage to the valve.)
- When transporting a valve, do not carry it by the handle.

- Store products in their corrugated cardboard boxes. Avoid exposing products to direct sunlight, and store them indoors (at room temperature). Also avoid storing products in areas with excessive temperatures. (Corrugated cardboard packages become weaker as they become wet with water or other liquid. Take care in storage and handling.)
- After unpacking the products, check that they are defect-free and meet the specifications.

(4) Name of parts

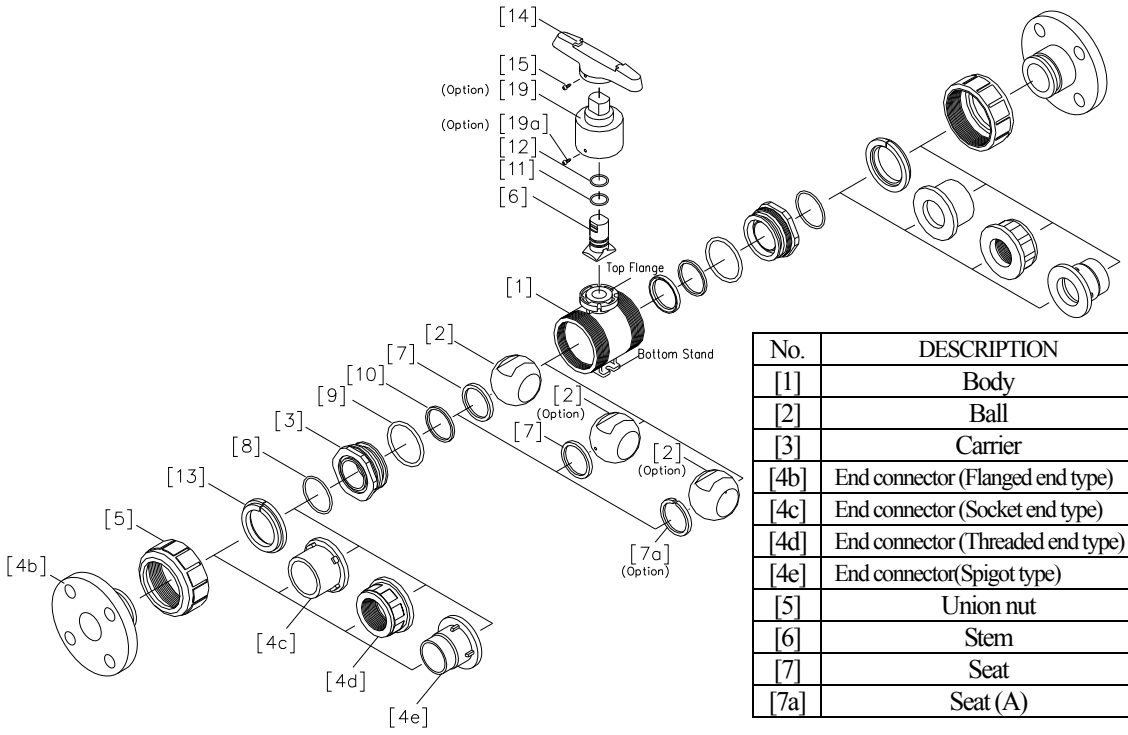
Nominal Size: 15-50mm (1/2”-2”)



No.	DESCRIPTION	No.	DESCRIPTION
[1]	Body *	[8]	O-ring (A)
[2]	Ball *	[9]	O-ring (B) *
[3]	Carrier *	[10]	O-ring (C) *
[4b]	End connector (Flanged End)	[11]	O-ring (D)
[4c]	End connector (Socket End)	[12]	O-ring (E)
[4d]	End connector (Threaded End)	[13]	Stop ring
[4e]	End connector (Spigot End) *	[14]	Handle
[5]	Union nut	[15]	Tapping screw (A)
[6]	Stem *	[19]	Extension stem
[7]	Seat *	[19a]	Tapping screw (B)
[7a]	Seat (A) *		

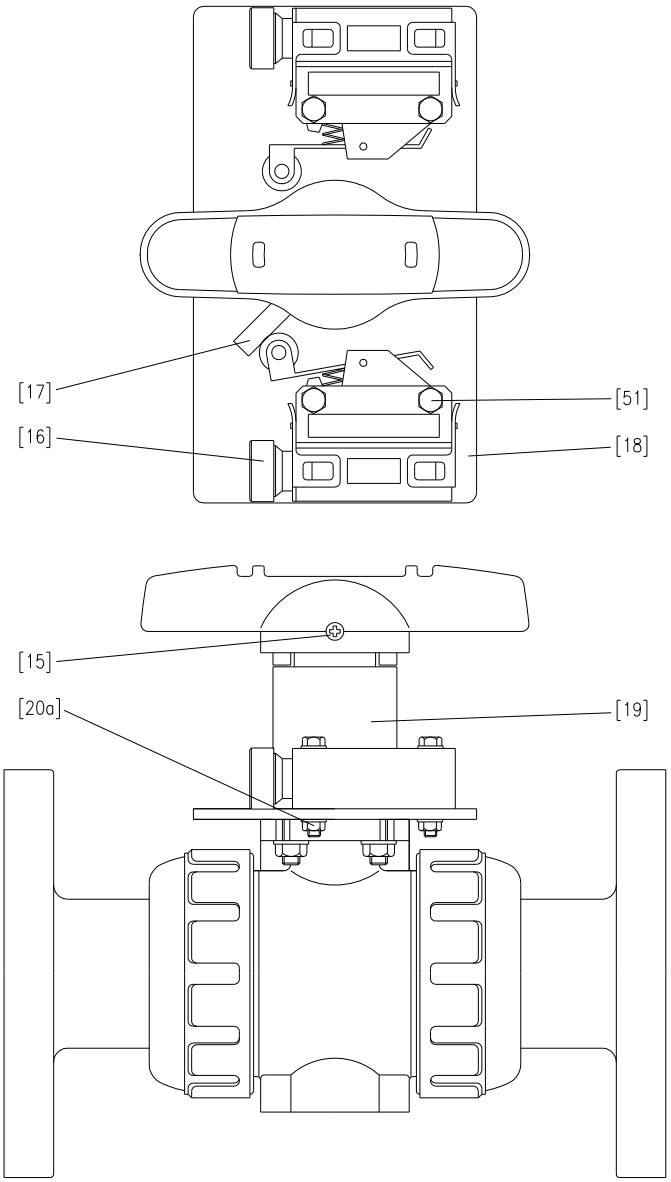
*Type21 and 21α have not all same parts to make one complete.
As for details, please consult your nearest service station beforehand.

Nominal Size: 65-100mm (2 1/2”-4”)



No.	DESCRIPTION	No.	DESCRIPTION
[1]	Body	[8]	O-ring (A)
[2]	Ball	[9]	O-ring (B)
[3]	Carrier	[10]	Cushion
[4b]	End connector (Flanged end type)	[11]	O-ring (C)
[4c]	End connector (Socket end type)	[12]	O-ring (D)
[4d]	End connector (Threaded end type)	[13]	Stop ring
[4e]	End connector(Spigot type)	[14]	Handle
[5]	Union nut	[15]	Tapping screw (A)
[6]	Stem	[19]	Extension stem
[7]	Seat	[19a]	Tapping screw (B)
[7a]	Seat (A)		

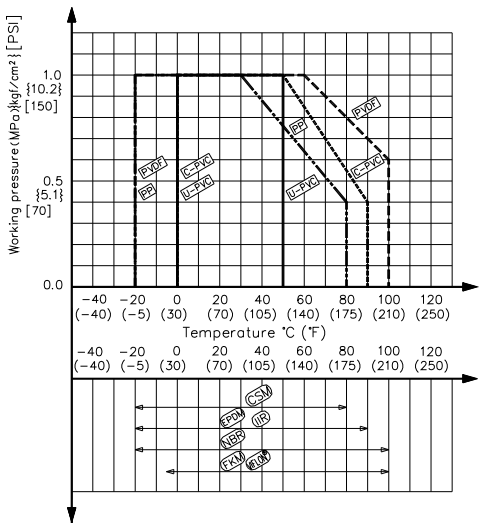
Nominal Size: 15-100mm (1/2”-4”) with Limit Switch (Option)



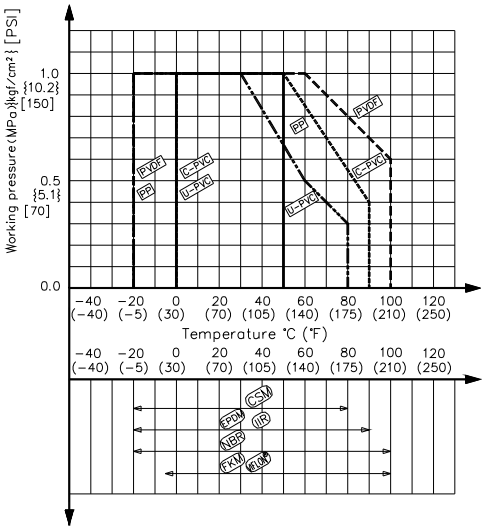
No.	DESCRIPTION	No.	DESCRIPTION
[15]	Tapping screw (A)	[19]	Extension stem
[16]	Limit switch	[20a]	Bolt･Nut(A)
[17]	Limit switch rod	[51]	Bolt･Nut (F)
[18]	Bracket (A)		

(5) Working pressure vs. temperature

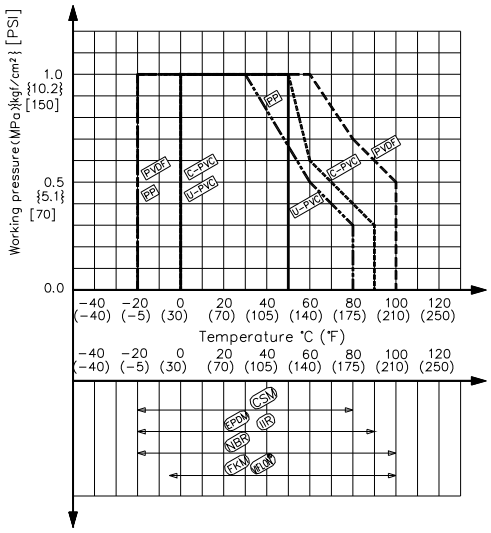
Nominal size: 15mm - 50mm (1/2" - 2")



Nominal size: 65mm (2 1/2")



Nominal size: 80mm, 100mm (3", 4")



(6) Specification of valve body

*Specification of Type 21 & Type 21α

Nominal size	Body material			
	PVC	C-PVC	PP	PVDF
15-50mm (1/2"-2")	Type21α		Type21	
65-100mm (2 1/2"-4")				

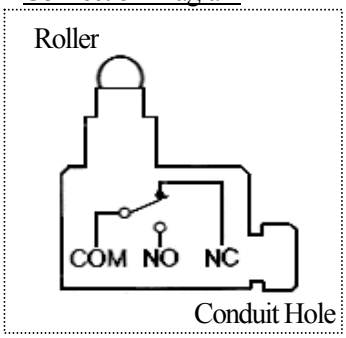
(7) Specification of limit switch (option)

Nominal Size	Type Code	Protection Grade
15 - 100mm (1/2 - 4")	SL1-P	IP67

Limit Switch Rating

Rate Voltage (V)	Resistive Load (A)	Inductive Load (A)
AC125	5	3
AC250	5	3
DC8	5	3
DC14	5	3
DC30	5	3
DC115	0.5	0.1
DC230	0.25	0.05

Connection Diagram



(8) Installation procedure

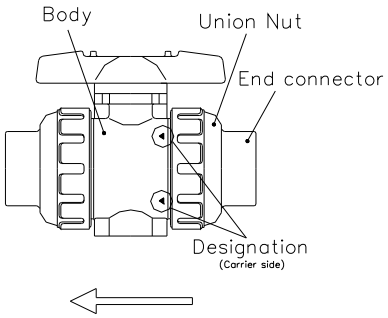
Warning

- When suspending and supporting a valve, take care and do not stand under a suspended valve.

- Be sure to conduct a safety check on all hand and power tools to be used before beginning work.
- Wear protective gloves and safety goggles as fluid remain in the valve even if the pipeline is empty. (You may be injured.)

Caution

- When installing a pipe support by means of a U-band or something similar, take care not to over-tighten. (Excessive force may damage the pipe.)
- When installing pipes and valves, ensure that they are not subjected to tension, compression, bending, impact, or other excessive stress.
- When installing a piece of equipment at the end of the piping line, be sure to keep the secondary (Downstream) End Connector and Union Nut installed on the valve.
- When installing Ball Valve, 15 to 50 mm (1/2" to 2") at the end, note the direction of flow. (Find the mark ◀ molded on the Carrier-side body. On the secondary (Downstream) side, the Carrier is integral with the valve body. This is the preferred method if installation when installing the equipment at the end of the line for safety purposes.)



- When installing, disassembling, or reassembling the piping, fix the End Connector.
- Before a water test, be sure that the Union Nut is tightly fastened.
- Fasten the Union Nut while avoiding the parallelism and axial misalignment of the flange surface.
- When connecting an ASAHI AV Valve to metal piping, take care not to let the pipe stress on the ASAHI AV Valve.
- When screwing in a Metal Insert (Ensat), install it vertically. Refer to the User's Manual for Metal Insert (Ensat) by the Maker.
- When loosening the union nut on the union side, fix the body cap (hold it with your hand) and do work. (If the body cap turns, the union will turn together, resulting in the union and ball separating from the body.) If the union is loosened, retighten the union.
- Take care not to over-tighten the Union Nut. (The valve can be damaged.)
- Do not use the pipe wrench. (The valve can be damaged.)

Flanged End (End connector materials: PVC, C-PVC, PP, PVDF,)

Caution
- Use flat faced flanges for connection to AV Valves.
- Ensure that the mating flanges are of the same standards.
- Be sure to use sealing gaskets (AV Gasket), bolts, nuts, and washers and tighten them to specified torques. (When a non-AV gasket is used, a different tightening torque specification should be followed.)

Necessary items
- Torque wrench
- AV gasket
- Spanner wrench
- Bolt, Nut, Washer (For many flanges specification)

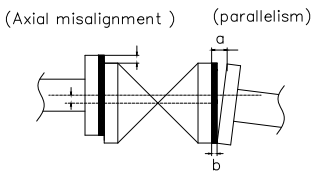
Procedure

1) When the union nut [5] flange assembly set was removed or loosen from body [1], O-ring (A) [8] should be installed into carrier and body groove. (In either horizontal or vertical installation, if necessary apply a small amount of lubricant to O-ring to hold in place.) Align union nut and end connector with the body. Insure end connector mates with body and O-ring. Make certain union nut threads onto body smoothly. Tighten union nuts on each side valve until hand tight. Then using a strap wrench tightens union nuts uniformly on each side approx 90^{o} -180^{o} turns, 1/4 to 1/2 turns.
2) Set the AV gasket between the flanges.
3) Insert washers and bolts from the pipe side, insert washers and nuts from the valve side, then temporarily tighten them by hand.

Caution
- The parallelism and axial misalignment of the flange surface should be under the values shown in the following table to prevent damage the valve.
(A failure to observe them can cause destruction due to stress application to the pipe)

Unit : mm (inch)

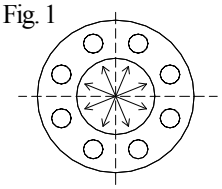
Nom. Size	Axial Misalignment	Parallelism (a-b)
15-32mm (1/2”-1 1/4”)	1.0mm (0.04”)	0.5mm (0.02”)
40-80mm (1 1/2”-3”)	1.0mm (0.04”)	0.8mm (0.03”)
100mm (4”)	1.0mm (0.04”)	1.0mm (0.04”)



4) Tighten the bolts and nuts gradually with a torque wrench to the specified torque level in a diagonal manner. (Refer to fig.1.)

Caution
- Tighten the bolts and nuts gradually with a torque wrench to the specified torque level in a diagonal manner.

Fig. 1



Recommended torque value Unit: N·m{kgf·cm}[lb·inch]

Nom. Size	15-20mm (1/2"-3/4")	25-40mm (1"-1 1/2")	50, 65 mm (2", 2 1/2")	80, 100 mm (3", 4")
PTFE・PVDF coated	17.5{179}[155]	20.0{204}[177]	22.5{230}[230]	30.0{306}[266]
Rubber	8.0 {82} [71]	20.0 {204} [177]	22.5 {230} [230]	30.0 {306} [266]

Threaded End (End connector materials: PVC, C-PVC, PP, PVDF)

Caution

- Avoid excessive tightening. (The valve can be damaged.)
- Make sure that the threaded connections are plastic x plastic. (Metallic thread can cause damage.)
- Wrap the threaded joints on our plastic piping with sealing tape. Using a liquid sealing agent or liquid gasket may cause stress cracks (Environmental Stress Cracking). Our product warranty shall not apply in case of said use, even when said use is unavoidable.

Necessary items

- Sealing tape
- Strap wrench
- Spanner wrench

Procedure

1) Wind a sealing tape around the external thread of joint, leaving the end (about 3mm) free.
2) Loosen the union nut [5] with a strap wrench.
3) Remove the union nut [5] and the end connector [4d].
4) Lead the union nut [5] through the pipe.
5) Tighten the external thread of the joint and the end connector [4d] hardly with hand.
6) Using a spanner wrench, screw in the end connector [4d] by turning 180° -360° carefully without damaging it.
7) Make sure that the O-ring (A) [8] is mounted.
8) Set the end connector [4d] and union nut [5] directly on the body without allowing the O-ring (A) [8] to come off.
9) Tighten union nuts [5] on each valve until hand tight.
10) Using a strap wrench tighten union nuts uniformly on each side approx 90° -180° turns, 1/4 to 1/2 turns.

Socket End (End connector materials: PVC, C-PVC)

Warning
- When using an adhesive, ventilate the space sufficiently, prohibit the use of a fire in the vicinity, and do not inhale adhesive vapors directly.
- If an adhesive gets into contact with your skin, wash it off immediately. If you feel sick or find any anomaly, receive a physician's diagnosis and take appropriate measures promptly.

Caution
- Take care in doing work at low temperatures. Solvent vapors are hard to evaporate and are likely to remain. (Solvent cracks may occur, damaging the equipment.) After assembling the piping system, open both ends of the piping and use a fan (of the Low-Voltage Type) or something similar to ventilate the space, thus removing the solvent vapors.
- Use the appropriate Asahi AV cement.
- Conduct a water test at least 24 hours after joining the pipes with an adhesive/cement.

Necessary items
- Adhesive for hard vinyl chloride pipes
- Strap wrench

Procedure

1) Loosen the union nut [5] with a strap wrench.
2) Remove the union nut [5] and end connector [4c].
3) Lead the union nut through the pipe.
4) Clean the hub part of the end connector [4c] by wiping the waste cloth.
5) Apply adhesive evenly to the hub part of the end connector [4c] and the pipe spigot.

Caution
- Do not apply more adhesive than necessary. (The valve can be damaged due to solvent cracking.)

Adhesive quantity (guideline)

Nom. Size	15mm (1/2")	20mm (3/4")	25mm (1")	32mm (1 1/4")	40mm (1 1/2")	50mm (2")	65mm (2 1/2")	80mm (3")	100mm (4")
Quantity(g)	1.0	1.3	2.0	2.4	3.5	4.8	6.9	9.0	13.0

6) After applying adhesive, insert the pipe quickly to the end connector [4c] and leave it alone for at least 60 seconds.

Caution
- Do not under any circumstances try to insert a pipe into another fitting or valve by striking it, which may break the piping.

7) Wipe away overflowing adhesive.
8) Make sure that O-ring(A) [8] is mounted
9) Set the end connector [4c] and union nut [5] directly on the body without allowing the O-ring (A) [8] to come off.
10) Tighten union nut [5] hardly with hand.
11) Using a strap wrench tighten union nuts uniformly on each side approx 90° -180° turns, 1/4 to 1/2 turns.

Socket End (End connector materials: PP, PVDF)

Necessary items

- Strap wrench
- Sleeve welder or automatic welding machine
- User's manual for sleeve welder or automatic welding machine

Procedure

1) Loosen the union nut with a strap wrench.
2) Remove the union nut [5] and the end connector.
3) Lead the union nut [5] through the pipe.
4) For the next step, refer to the user's manual for the sleeve welder or the automatic welding machine.
5) After welding, make sure that the O-ring (A) [8] is mounted.
6) Set the end connector [4c] and the union nut [5] directly without allowing the O-ring (A) [8] to come off.
7) Tighten union nut [5] hardly with hand.
8) Using a strap wrench tighten union nuts uniformly on each side approx 90° -180° turns, 1/4 to 1/2 turns.

Spigot End (End connector materials: PP, PVDF)

Necessary items

- Strap wrench
- Automatic welding machine
- User's manual for automatic welding machine

Procedure

1) Loosen the union nut with a strap wrench.
2) Remove the union nut [5] and the end connector.
3) Lead the union nut [5] through the pipe.
4) For the next step, refer to the user's manual for the sleeve welder or the automatic welding machine.
5) After welding, make sure that the O-ring (A) [8] is mounted.
6) Set the end connector [4e] and the union nut [5] directly without allowing the O-ring (A) [8] to come off.
7) Tighten union nut [5] hardly with hand.
8) Using a strap wrench tighten union nuts uniformly on each side approx 90° -180° turns, 1/4 to 1/2 turns.

(9) Connection of limit switch procedure (option)

Warning - Shut down the power on the equipment before connecting wires. There are risks of electrical shock depending on the level of operating voltage.

Caution - Connect the cables by using insulated sheathed crimping terminals in such a way as not to contact the cover or housing. (Contact of a crimping terminal with the cover may disable the cover from being closed or may cause a ground fault.)

- Be sure that the terminal cover and body cover are put on during the operation.

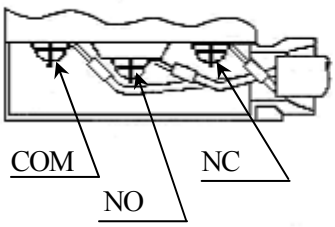
Necessary items

- Screw driver (+)
- Screw driver (-)
- Connector (G1/2)
- Wire stripper
- Terminal crimping tool

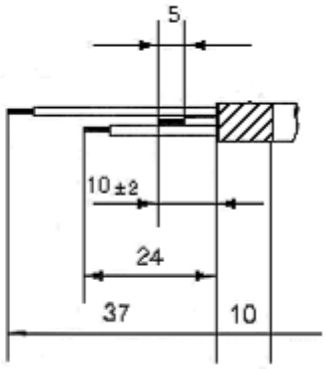
Procedure

1) Adjust a cable as shown in the figure below. (When installing a crimp style terminal on the lead wire, use crimp style terminals with insulation sleeve (M3) so that, its does not contact the housing and other crimp style terminals.)

Details of connection

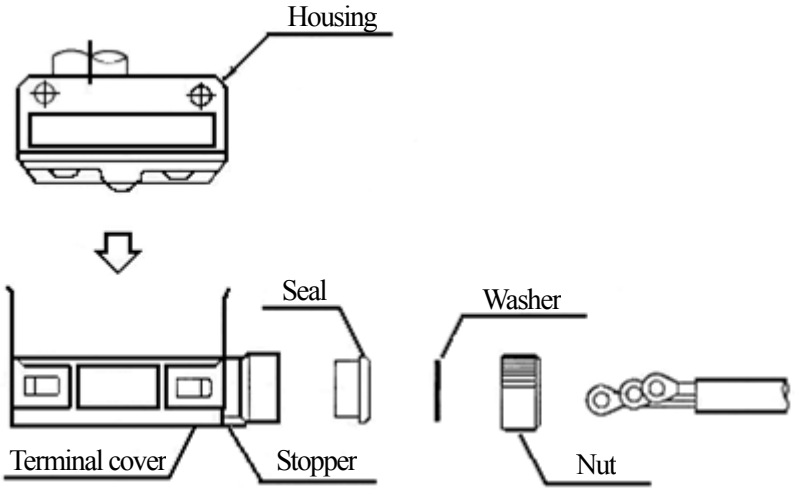


Details of cable



2) Remove the terminal cover from the housing by using a screw driver (-)

3) Draw a cable through each part as shown in the figure below.



4) Connect the crimp style terminal to the terminal board with a screw driver

5) Attach the terminal cover to the housing.

6) Set the seal and washer, and tighten the nut to the terminal cover.

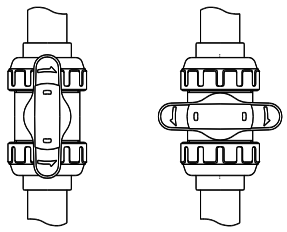
(10) Operating procedure

Caution
- Do not exert excessive force in closing the valve.
- Do not use the valve to fluid containing slurry. (The valve will not operate properly.)
- The installed valve must never be opened or closed when foreign matter such as sand is present in the pipeline.
- When operating the handle, be sure to do so with your hand. (Using a tool may damage the handle.)
- Before opening or closing a lubricant free product, be sure to apply water.

○ Turn the handle gently to open or close.
(Turn the handle clockwise to close and counter clockwise to open.)

Fully closed ····· The position of the handle should be perpendicular to the pipe.

Fully opened ····· The position of the handle should be parallel to the pipe.



Fully opened Fully closed

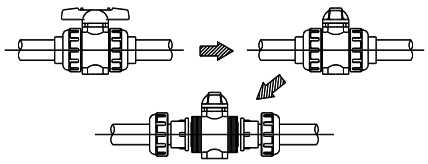
(11) Method of adjusting face pressure between ball and seat

Caution
- Take care not to over-tighten the Union Nut. (The valve can be damaged.)
- Do not use the pipe wrench. (The valve can be damaged.)

Necessary items
- Strap wrench
- Protective gloves
- Safety goggles
- Screwdriver (+) (only with nominal size 65-100mm)

Procedure

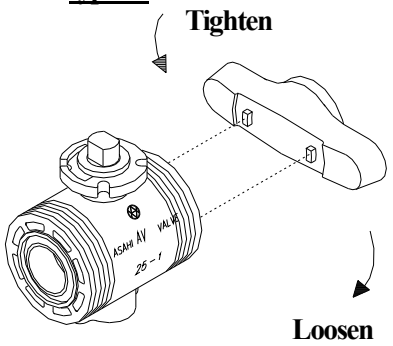
1) Completely discharge fluid from pipes.
2) Turn the handle to full close.
3) Loosen the right union nut and the left one [5] with a strap wrench.
4) Remove the body part from piping system.



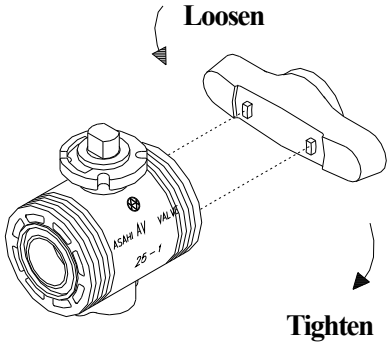
Caution
- If you do work with the piping installed, drain the piping of all its fluid. Some fluid will remain in the valve. Therefore wear protective goggles and protective gloves.
(You may otherwise get injured.)

5) Pull the handle off the body part.
As for nominal size 65-100mm (2 1/2"-4"), loosen the screw [15] properly with a screwdriver before pulling it off.
6) Engage the upper convex part of the handle with the concave part of the union [3].
As for nominal size 15-50mm Only the union [3] on the right side when viewed from the trademark (AV mark) can be adjusted.
As for nominal size 65-100mm adjust the unions on both sides.
7) Male an adjustment by turning the union [3] clockwise or counter clockwise.
- Tighten the union
Ball Valve Type 21: Clockwise
Ball Valve Type 21α: Counter clockwise
- Loosen the union
Ball Valve Type 21: Counter clockwise
Ball Valve Type 21α: Clockwise
8) Make sure that the handle can be operated smoothly.
9) Assemble the valve by following the above procedure in the reverse order, starting at 6)

Ball valve **type 21**



Ball valve **type 21α**



(12) Disassembling method for replacing parts

Warning
- Be sure to conduct a safety check on all hand and power tools to be used before beginning work.
- Wear protective gloves and safety goggles as fluid remain in the valve even if the pipeline is empty. (You may be injured.)
- Do not change or replace valve parts under line pressure.

Caution
- Take care not to over-tighten the Union Nut. (The valve can be damaged.)
- Do not use the pipe wrench. (The valve can be damaged.)
- When installing, disassembling, or reassembling the piping, fix the End Connector.
- Before a water test, be sure that the Union Nut is tightly fastened.
- Fasten the Union Nut while avoiding the parallelism and axial misalignment of the flange surface.
- When connecting an ASAHI AV Valve to metal piping, take care not to let the pipe stress on the ASAHI AV Valve.
- Ball valve type 21・21α has the case of incompatible for a part of parts. (parts: Body[1], Ball[2], Carrier[3], Stem[6], Seat[7])

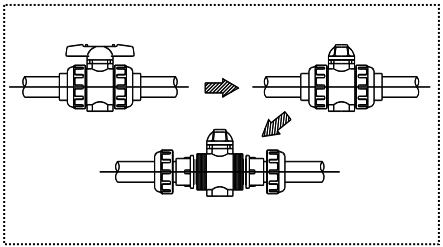
Necessary items
- Strap wrench
- Protective gloves
- Safety goggles

Caution
- If you do work with the piping installed, drain the piping of all its fluid. Some fluid will remain in the valve. Therefore wear protective goggles and protective gloves. (You may otherwise get injured.)

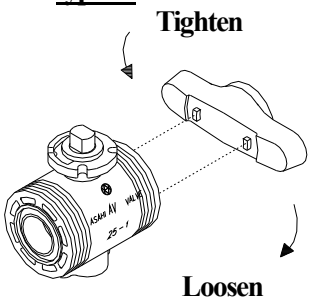
<Disassembly>

Procedure

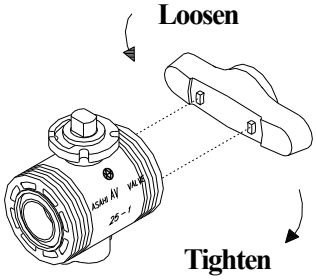
1) Completely discharge fluid from pipes.
2) Turn the handle to full close.
3) Loosen the right union nut and the left one [5] with a strap wrench.
4) Remove the body part from piping system.
5) Pull the handle off the body part.
   Engage the upper convex part of the handle with the concave part of the union.
6) In the engaged state, turn the handle [14] counter clockwise to loosen it and remove the union [3].
7) Remove the seat [7] carefully by hand without damaging it.
8) Push out the ball [2] by hand.
9) Push out the stem [6] from the top flange side to the body side.



Ball valve **type 21**



Ball valve **type 21α**



Caution

- As for nominal size 15-50mm. Only the carrier on the right side when viewed from the trademark (AV mark) can be adjusted.
  As for nominal size 65-100mm, adjust the carriers on both sides.

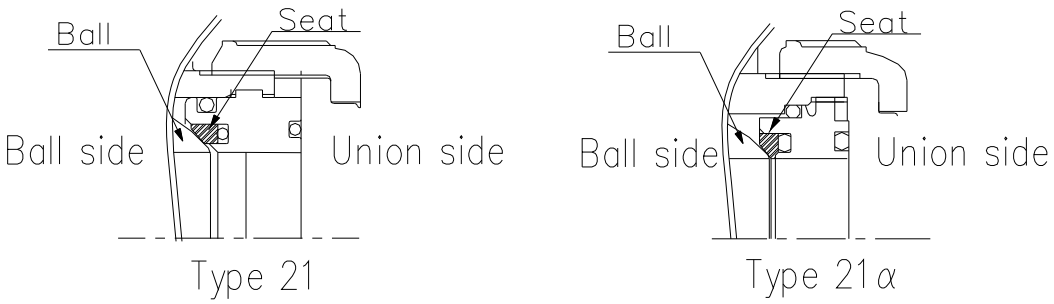
<Assembly>

Procedure

Carry out the assembly work in the reverse procedure from item 10)

Caution

- Before assembling PTFE seat in to the carrier, check the seat for seat face to touch the boll.



(13) Mounting actuator, metal ensat and base (Panel), install the locking device

○ Attach actuator to the top flange

Procedure

1) Remove the handle [14].
   As for nominal 65mm-100mm, tighten the screw [15] properly before removing it.

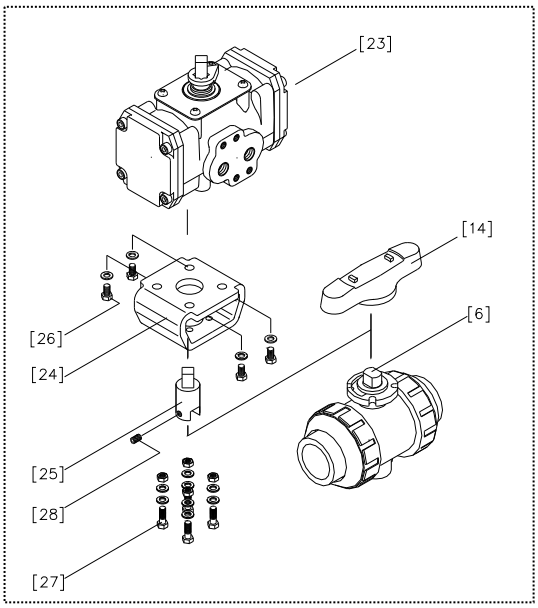
2) Fix the stand [24] to actuator [23] with bolt (A).

3) Fix the stem [6] to the joint [25] with screw (B) [28].

4) Engage the joint [25] with actuator [23].

5) Fix the stand [24] to the top flange with bolt-nut (B) [27].

6) Make sure that the valve works smoothly, by operating actuator [23] by hand.



○ Attach Inserted metal to the bottom stand.

Caution - When screwing in a Metal Insert (Ensat), install it vertically. Refer to the User's Manual for Metal Insert (Ensat) by the Maker.

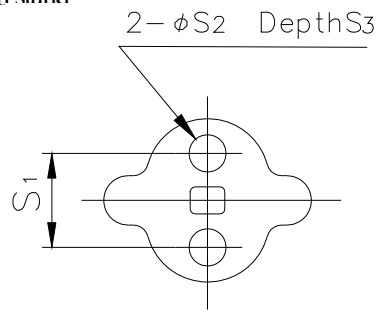
Procedure

Refer to the user's manual for the Inserted metal (Commercially available.)

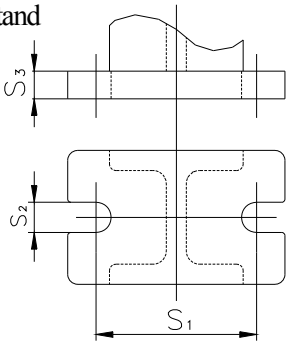
Bottom stand dimension Unit; mm

Nom. Size		S1	S2	S3
15mm	(1/2")	19	7.3	11
20mm	(3/4")	19	7.3	11
25mm	(1")	19	7.3	11
32mm	(1 1/4")	30	9	15
40mm	(1 1/2")	30	9	15
50mm	(2")	30	9	15
65mm	(2 1/2")	48	9	6
80mm	(3")	55	11	7
100mm	(4")	65	11	8

Nominal 15-50mm(1/2"-2")
Bottom stand



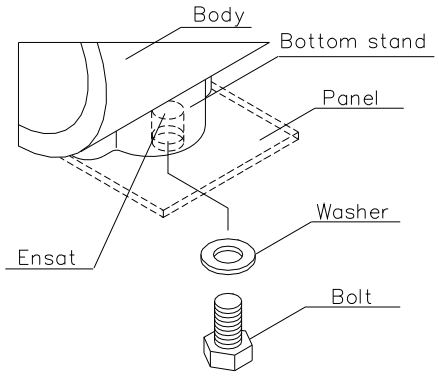
Nominal 65-100mm (2 1/2"- 4")
Bottom stand



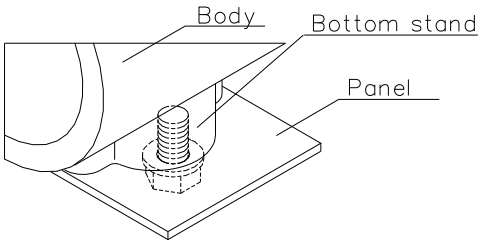
○ Fixation of bottom stand with panel

Nominal size: 15mm-50mm (1/2”-2”)

Before the fixation

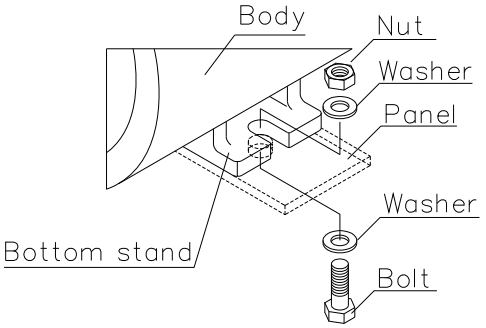


After the fixation

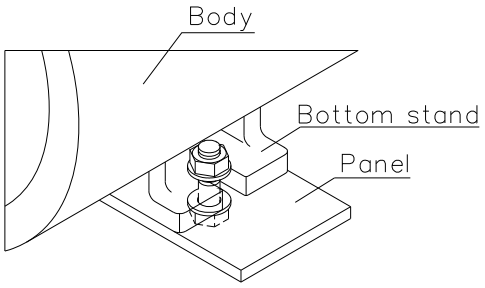


Nominal size: 65mm-100mm (2 1/2”-4”)

Before the fixation

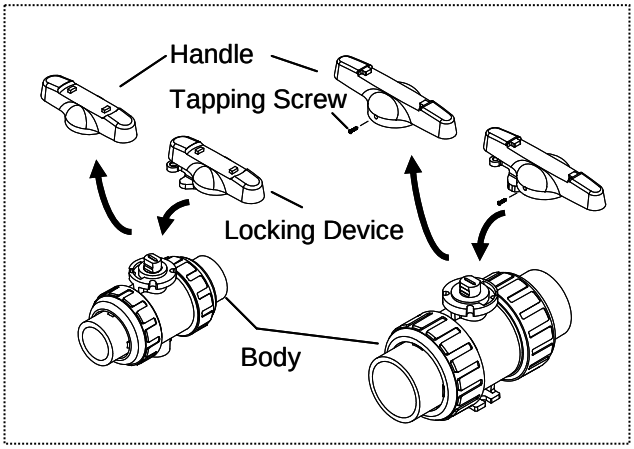


After the fixation

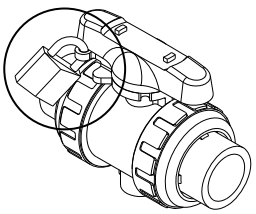


○ Installation Procedure of the Locking Device

The handle lock can be done by full-open (close). Refer to the User’s manual for Locking Device (Option).



The location hole for the lock is already installed in the handle. (Table 1)



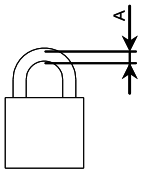


Table 1 <Size of Key>

Nominal Size mm (inch)	**A** mm (inch)
15-25 ($^1/_2$-1”)	5 (0.20”)
32-50 (1 $^1/_4$-2”)	6 (0.24”)
65-100 (2 $^1/_2$-4”)	7 (0.28”)

(14) Inspection items

Caution - Perform periodic maintenance. (Leakage may develop due to temperature changes or over periods of prolonged storage, rest or operation.)

○Inspect the following items.

(1)	Check for any flaw, cracks, or deformation on the outside.
(2)	Check whether fluid leaks to the outside.
(3)	Check whether the cap nut has been loosened.
(4)	Check whether the handle can be operated smoothly.

(15) Troubleshooting

Problem	Cause	Treatment
Fluid leaks from the valve even when the valve is closed fully.	The carrier is loosened.	Adjust the face pressure between the ball and the seat. (Refer to page 14)
	The seat is scratched or worn.	Replace the seat with a new one.
	Foreign matter is in the valve.	Clean up.
	The ball is scratched or worn.	Replace the scratched ball with a new one.
Fluid leaks from the valve.	The union nut is loosened.	Tighten up the union nut.
	The carrier is loosened.	Adjust the face pressure between the ball and the seat. (Refer to page 14)
	The O-ring is scratched or worn.	Replace the O-ring with a new one.
The handle can not be turned smoothly.	Foreign matter is in the valve.	Clean up.
	Deformation. (By heat etc.)	Replace the parts.
	The carrier is tightening too much.	Adjust the face pressure between the ball and the seat. (Refer to page 14)
The handle fails to engage.	The stem is broken.	Replace the stem with a new one.
	The engagement between the stem and the ball is broken.	Replace the stem and ball with new ones.

(16) Handling of residual and waste materials

Warning - Make sure to consult a waste treatment dealer for recommendations on the proper disposal of plastic valves. (Poisonous gas is generated when the valve is burned improperly.)

Ball Valve Type 21・21α

ASAHI *AV* VALVES

Distributor

Asahi Organic Chemicals Industry's homepage http://www.asahi-yukizai.co.jp/en/

Information in this manual is subject to change without notice. 2012.01